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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,145	02/27/2002	Yutaka Ozawa	111773	6602

25944 7590 06/15/2005

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

SHAPIRO, LEONID

ART UNIT PAPER NUMBER

2677

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,145

Applicant(s)

OZAWA, YUTAKA

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of newly introduced claims 11-12: "wherein the non-display signal is an undriven voltage that is at least one of a voltage that makes the display elements display white in a normally white mode and a voltage that makes the display elements display black in a normally black mode" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 11-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear how an **undriven** voltage (non-display signal) can make (reset) display elements white or black? The state of the display could not be changed by an **undriven** voltage (non-display signal).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 7, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (US Patent No. 6,771,249 B2) in view of Rader (US Patent No. 5,867, 140).

As to claim 1, Inoue et al. teaches a method of driving a plurality of display elements arranged in a matrix (See Fig. 1, item 100), and constituting a region to make each display element display in the region (See Fig. 6, items 41-60, from Col. 13, Line

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163 to Col. 14, Line 4), a gray level that the display element should display through at least one frame period of plurality of frame periods (Col. 10, Lines 33-40), by using a plurality of scanning lines for supplying a scanning signal that selects the display element (See Fig. 1, item 350, from Col. 7, Line 54 to Col. 8, Line 15) and a plurality of data lines for supplying a data signal that specifies the gray level (See Fig. 1, item 250, from Col. 7, Line 54 to Col. 8, Line 15 and Col. 10, Lines 33-40), the method comprising:

a first supplying step of supplying the scanning signals to certain scanning lines of the plurality of scanning lines, the certain scanning lines corresponding to display elements included in a certain part of the region for displaying gray level (See Fig. 7, Y1-Y200, Col. 14, Lines 5-67), the first step including supplying data signal that specifies the gray level to the plurality of data lines corresponding to the display elements included in the certain part of the region (See Fig. 3, items 4002, 4008, and Fig. 7, item PD, Col. 11, Lines 35-39).

Inoue et al. does not disclose a second supplying step of supplying the scanning signal to both the certain scanning lines and scanning lines other than certain scanning lines of the plurality of scanning lines, the other scanning lines corresponding to display elements included in an other part of the region for not displaying the gray level other than certain part of the region, the second step including:

supplying data signal that specifies the gray level to the plurality of data lines corresponding to the display elements included in the certain part of the region, and

supplying a non-display signal that specifies a non-display voltage level to the plurality of data lines corresponding to the display elements included in the other part of the region.

Rader teaches supplying step of supplying the scanning signal to both the certain scanning lines (See Fig. 3, item 305, Col. 2, Lines 22-30) and scanning lines other than certain scanning lines of the plurality of scanning lines (See Fig. 3, item 303, Col. 2, Lines 22-30), the other scanning lines corresponding to display elements included in an other part of the region for not displaying the gray level other than certain part of the region (See Fig. 4, items 313, 200, Col. 7, Lines 2-7 and Lines 26-61) (applying AC driving to all pixels) the second step including:

supplying data signal that specifies the gray level to the plurality of data lines corresponding to the display elements included in the certain part of the region (See Fig. 3, item 305, Col. 5, Lines 19-27), and

supplying a non-display signal that specifies a non-display voltage level to the plurality of data lines corresponding to the display elements included in the other part of the region (See Fig. 3, item 303, Col. 5, Lines 35-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Rader into the Inoue et al. method in order to conserve power (See Abstract in the Rader reference).

As to claim 10, Inoue et al. teaches a electronic apparatus (See Fig. 1, item 100) in which, to display a gray level to be displayed (See Fig. 3, Col. 10, Lines 33-38) through at least one frame period of a plurality of frame periods specified by the image

data (See Fig. 5, items nth FRAME, (n=1) th FRAME), a plurality of scanning lines for supplying a scanning signals that selects the display elements arranged in a matrix (See Fig. 1, items Y1-Y200, from Col. 7, Line 54 to Col. 8, Line 15) and a plurality of data lines for supplying a data signal that displayed the gray level (See Fig. 1, item X1-X160, from Col. 7, Line 54 to Col. 8, Line 15 and Col. 10, Lines 33-40), the scanning signals selecting the plurality of display elements items (See Fig. 1, item 350) and the data signals specifying gray levels to be displayed by the plurality of the display elements (See Fig. 1, item 250), the electronic apparatus comprising:

- a production circuit that produces the image data according to the information inputted from the input circuit (See Fig. 1, item 400); and

- a display circuit that displays the image data produced by production circuit (See Fig. 1, items 250, 350, 500), the display circuit supplying:

- the scanning signals to certain scanning lines of the plurality of scanning lines and data line signal, the certain scanning lines corresponding to display elements included in a certain part of the region for displaying gray level (See Fig. 7, Y1-Y200, Col. 14, Lines 5-67), data signal specifying the gray level to the plurality of data lines corresponding to the display elements included in the certain part of the region. (See Fig. 3, items 4002, 4008, and Fig. 7, item PD, Col. 11, Lines 35-39).

Inoue et al. does not disclose the scanning signal to both the certain scanning lines and scanning lines other than certain scanning lines of the plurality of scanning lines, the other scanning lines corresponding to make the gray level undisplayed and data signal that specifies the gray level to the plurality of data lines corresponding to the

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display elements included in the certain part of the region, and including supplying a non-display signal that specifies a non-display signal that specifies a non-display voltage level to the plurality of data lines corresponding to the display elements included in the other part of the region and an input circuit that input information to specify the image data.

Rader teaches the scanning signal to both the certain scanning lines (See Fig. 3, item 305, Col. 2, Lines 22-30) and scanning lines other than certain scanning lines (See Fig. 3, item 303, Col. 2, Lines 22-30) of the plurality of scanning lines, the other scanning lines corresponding to make the gray level undisplayed (See Fig. 4, items 313, 200, Col. 7, Lines 2-7 and Lines 26-61) and data signal that specifies the gray level to the plurality of data lines corresponding to the display elements included in the certain part of the region (See Fig. 3, item 305, Col. 5, Lines 19-27), and including supplying a non-display signal that specifies a non-display signal that specifies a non-display voltage level to the plurality of data lines corresponding to the display elements included in the other part of the region (See Fig. 3, item 303, Col. 5, Lines 35-39) an input circuit that input information to specify the image data (See Fig. 3, item 318).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Rader into the Inoue et al. method in order to conserve power (See Abstract in the Rader reference).

As to claims 2-3, 7, Inoue et al. teaches the first supplying step (See Figs. 3, items 4002, 4008 and Fig. 7, item PD, Col. 11, Lines 35-39) and Rader teaches the

second supplying step (See Fig. 3, item 305, Col. 5, Lines 19-27) is performed in each or at least once in each of the frame periods.

4. Claims 4-6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. and Rader as applied to claims 3 and 7 above, and further in view of Wani et al. (US Patent No. 6,236,380 B1).

As to claim 4, Inoue et al. and Rader do not show each of the frame periods has a plurality of subfield periods each used for performance of one of the first and second supplying steps.

Wani et al. teaches each of the frames periods has a plurality of subfield periods each used for performance of one of the first and second supplying steps (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 10-16).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Wani et al. into Rader and the Inoue et al. system in order to include a whole scanning and a partial scanning subfield (See Col. 2, Lines 9-10 in the Wani et al. reference).

As to claims 5-6, Inoue et al. and Rader do not show the second supplying step (second supplying step is equivalent to full scanning) is performed in one subfield of the plurality of subfields included in the plurality of frame periods, and the first supplying step (first supplying step is equivalent to partial scanning) is performed in subfield other the one subfield.

Wani et al. teaches the second supplying step (second supplying step is equivalent to full scanning) is performed in one subfield of the plurality of subfields included in the plurality of frame periods, and the first supplying step (first supplying step is equivalent to partial scanning) is performed in subfield other the one subfield (See Figs. 1-2, Col. 3, Lines 27-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Wani et al. into Rader and the Inoue et al. system in order to include a whole scanning and a partial scanning subfield (See Col. 2, Lines 9-10 in the Wani et al. reference).

As to claim 8, Inoue et al. and Rader do not show a period of second supplying step is longer than period of the first supplying step.

Wani et al. teaches a period of second supplying step (second supplying step is equivalent to full scanning) is longer than period of the first supplying step (first supplying step is equivalent to partial scanning) (See Figs. 1-2, Col. 3, Lines 34-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Wani et al. into Rader and the Inoue et al. system in order to include a whole scanning and a partial scanning subfield (See Col. 2, Lines 9-10 in the Wani et al. reference).

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al., Wani et al. and Rader as applied to claim 1 above, and further in view of Burgan et al. (US Patent No. 5, 805,121).

Inoue et al., Wani et al. and Rader do not show a step of applying the data signal making the display element undriven to the data line corresponding thereto when supplying the scanning signals to the other scanning lines.

Burgan et al. teaches a step of applying the data signal making the display element undriven to the data line corresponding thereto when supplying the scanning signals to the other scanning lines (See Fig. 4, BP2-FP3, Col. 4, Lines 43-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the step as shown by Burgan et al. in Inoue et al., Wani et al. and Rader apparatus in order to apply an improved and lower power technique for establishing an off or standby mode for pixels in an LCD (See Col. 1, Lines 34-40 in the Burgan et al. reference).

Response to Amendment

6. Applicant's arguments filed on 01-11-05 with respect to claim 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

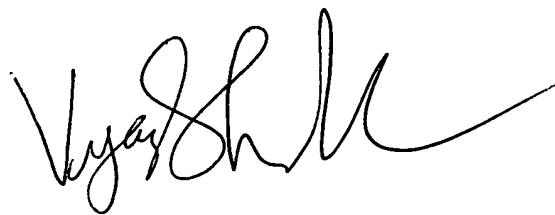
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ls

06.08.05

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, flowing script.

VIJAY SHANKAR
PRIMARY EXAMINER